

ABSTRACT

A semiconductor integrated circuit comprises contact pads located over active components, which are positioned to minimize the distance for power delivery between a selected pad and one or more corresponding active components, to which the power is to be delivered. This minimum distance further enhances dissipation of thermal energy released by the active components.

More specifically, a semiconductor integrated circuit comprises a laterally organized power transistor, an array of power supply contact pads distributed over the transistor, means for providing a distributed, predominantly vertical current flow from the contact pads to the transistor, and means for connecting a power source to each of the contact pads. Positioning the power supply contact pads directly over the active power transistor further saves precious silicon real estate area. The means for vertical current flow include contact pads made of a stack of metal layers comprising refractory metals for adhesion, copper and nickel as stress-absorbing metals, and gold or palladium as bondable and solderable outermost metals. The means for connecting a power source include wire bonding and solder ball interconnection.

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